REMARKS

The Final Office Action dated November 14, 2006 has been received and carefully reviewed, with pending claims 1-13 standing finally rejected. Applicants note the indication that the drawing received on October 10, 20067 has been accepted and Applicants reiterate and incorporate the arguments and remarks found in the previous responses. In addition, the following additional remarks are submitted to clarify that **neither of the primary reference Scheibel 6,212,240 nor the secondary references Sayeed 5,828,677 or Padovani 6,574,211 teach or suggest a rate indication message that includes a data rate based on a measured channel condition at the receiver**. As such, the pending claims 1-13 are patentable over the cited references and Applicants request reconsideration and allowance thereof as set forth in the following remarks.

Independent claim 1 recites "receiving a rate indication message including a data rate based on a channel condition measurement at the receiver", and independent claim 11 recites "transmitting a rate indication message if the first data transmission was not successfully received at the receiver, wherein the rate indication message includes a data rate based on a channel condition measurement at the receiver".

In the Office Action, three sets of rejections are presented. A first set includes anticipation rejections based on Scheibel 6,212,240 (claims 1, 2, 5, 6, 11, and 12), as well as obviousness rejections based on combinations of Scheibel with Reed 4,939,731 (claim 4), Scheibel with Wang 5,838,267 (claims 3 and 13), Scheibel with Corke 6,414,938 (claim 7), and Scheibel with Kameda 5,940,772 (claims 8-10). A second set of rejections includes obviousness rejections based on Reed combined with Sayeed (claims 1, 2, 4, 5, 11, and 12) and these references further combined with Wang (claims 3 and 13) or Corke (claims 6-10). In a third set of rejections, the independent claims 1 and 11 were rejected as obvious in view of Reed combined with Padovani 6,574,211.

In each of the rejections, one of Scheibel, Sayeed, or Padovani is relied upon as allegedly teaching a rate indication message that includes a data rate based on a measured channel condition at the receiver as set forth in the independent claims 1 and 11. The first rejections rely on Scheibel teaching this feature of the independent claims 1 and 11. The second set of rejections asserts that Sayeed teaches this feature. The third set of rejections again alleges that Padovani teaches the claimed rate indication message. **None of these references teaches or fairly suggests the claimed rate indication message**, whereby the pending claims are

neither anticipated nor rendered obvious by the cited art. In this respect, no prima facie case of anticipation or obviousness has been established whereby the pending claims 1-13 are patentable over all three sets of rejections and Applicants request that the rejections be withdrawn.

SCHEIBEL FAILS TO TEACH OR SUGGEST THE CLAIMED RATE INDICATION MESSAGE

Scheibel does not involve receiving or transmitting a rate indication message that includes a data rate based on a channel condition measurement at the receiver as set forth in Applicants' claims. The Office Action incorrectly asserts that the ACK 212 of Scheibel constitutes the claimed rate indication message. In particular, the Office Action asserts that the header 213 of the ACK frame 212 includes the claimed data rate.

Scheibel's First Message 202

Scheibel describes a first message 202 (Fig. 2) that is sent by the sending device 107 to a target device 101. The first message 202 of Scheibel includes a header 203 and one or more data blocks 204-207.

Scheibel states at col. 4, lines 1-10 that the header 203 of the first message 202 comprises control information related to the data message and the overall data transmission, such as:

(1) the number of data blocks contained in the message 202,

(2) the message type,

(3) identification of the sending communication device,

(4) identification of the target communication device,

(5) a protocol sequencing number for the message 202,

(6) the protocol sequencing number of the last message received from the target communication device, and

(7) *the modulation rate at which the data blocks 204-207 will be transmitted.*

The first message 202 of Scheibel is sent at a first modulation rate (col. 3, lines 8-11). As shown in the embodiment of Scheibel Fig. 2, the header 203 is sent using QPSK modulation (arrow under header 203 shown as "(QPSK)"), whereas the data blocks 204-207 are transmitted using 64-ary QAM (arrow under data blocks 204-207 indicated as "(64 QAM)"). Scheibel states:

> Since the header control information is important to processing the message 202 and is relatively short, *the message header 203 is always transmitted at the lowest modulation rate*, in the preferred embodiment, to maximize the likelihood of successful transfer of the control information. On the other hand, the *data blocks 204-207* are generally much larger than the control information; thus, they *are transmitted at the higher data rates*, at least initially, to minimize bandwidth consumption.

(col. 4, lines 14-22, emphasis added). Thus, the two portions of the first message are sent at potentially different modulation rates. In this respect, the inclusion of a modulation rate in the header 203 of the first message provides useful information to the receiving target device 101.

Scheibel's ACK Message 212

Scheibel describes an ACK message 212 sent by the target device 101 back to the sender 107 (also shown in Fig. 2). The ACK 212 includes a header 213 and a bitmap including bit positions 214-217. The bit positions 214-217 of the ACK message 212 correspond to the data blocks 204-207, where the bits indicate whether or not the corresponding data block was received.

Scheibel states that the ACK message 212 is transmitted at the lowest possible modulation rate using QPSK modulation (col. 4, lines 25-28). In Fig. 2, moreover, the entire ACK message is indicated as being sent at the lowest possible data rate using QPSK modulation (arrow under the entire message 212 shown as "(QPSK)"; see also col. 4, lines 26-28). Therefore, while the first message 202 is sent at two different modulation rates, the ACK message 212 is sent at a single rate.

It is Doubtful that the ACK Header 212 includes a modulation rate

Scheibel states at col. 4, lines 30-34 that the header 213 of the ACK message 212 includes the same *type* of control information as the message header 203. As set forth above, the first message header 203 is stated to include seven items of control information. Importantly, Scheibel does not state that the header 213 includes *all* the control information found in the first message header 203, and in particular Scheibel does not state that the ACK header 213 has a modulation rate as in the first header 203. Furthermore, the first header 203 is said to include a modulation rate *at which the data blocks 204-207 will be transmitted*. There are no data blocks transmitted in the ACK message 212, and therefore there is no corresponding need for a modulation rate

in the ACK header 213. Moreover, since the ACK message 202 is sent at a single modulation rate (the lowest possible modulation rate), there is no need for a modulation rate in the ACK message 213 and **a person of ordinary skill in the art would conclude that the ACK header 213 does not include a modulation rate**.

Any modulation rate included in the ACK Header 212 is not based on a channel condition measurement at the target device 101 of Scheibel

Even if the ACK header 213 in Scheibel is interpreted as including a modulation rate (for which there is no clear teaching), any such modulation rate is not based on a channel condition measurement at the receiver. If it is assumed that the header 213 includes a modulation rate akin to that in the first message header 203, such a modulation rate would represent the rate at which the bitmap 214-217 is transmitted. As stated in Scheibel, the ACK is transmitted at the lowest possible modulation rate, and therefore **any modulation rate included within the header 213 is not based on a channel condition measurement at the target device 101, but instead indicates the lowest possible modulation rate regardless of the channel condition at the receiver 101**.

The Office Action on this point cites to the inclusion of the bitmap 214-217 in the ACK message 212 as indicating a quantity of blocks that were not received. However, **the fact that the bitmap 214-217 indicates which blocks were properly received in no way implies that a modulation rate in the ACK header 213 is in any way based on a channel condition measurement at the target device 101**.

Scheibel retransmission at a second modulation rate

The Office Action also states in this regard that the ACK frame 212 indicates to retransmit at a second modulation rate. In Scheibel, the bitmap 214-217 in the ACK frame 212 is indeed stated to indicate blocks that were not received. Additionally, Applicants note that Scheibel may be fairly interpreted as teaching that lack of reception at the target receiver 101 of one or more data blocks may be *caused* or somehow *related to* a channel condition at the receiver 101. Moreover, Scheibel does indeed teach retransmission of the non-received data blocks at a potentially different second rate.

However, **the Office Action appears to improperly conclude that because a retransmission may be made at a different rate, and because the retransmission**

may be necessitated by a channel condition at the receiver, and because the ACK message 212 includes the bitmap 214-217 indicating which blocks were not received, and because the ACK message itself may include a modulation rate in the header 213 that indicates the modulation rate for the bitmap 214-217 of the ACK message, that somehow the header modulation rate is "based on a channel condition measurement at the receiver" as set forth in claims 1 and 11. Any such conclusion is entirely improper and not supported by the teachings of Scheibel.

Furthermore, the retransmission in Scheibel is clearly done at a first or second modulation rate, based on comparing the number of blocks to be resent with a threshold (col. 3, lines 28-41). Thus, **the sending device 107 of Scheibel does not select the retransmission rate according to a data rate in the ACK header 213, but instead sets the rate itself according to the number of blocks to be resent and the threshold**.

As set forth above, **there is no teaching or suggestion whatsoever in Scheibel for sending or receiving a rate indication message that incudes a data rate based on a channel condition measurement at the receiver as in the Applicants' claims**. Accordingly, the first set of rejections is improper and should be withdrawn.

REED FAILS TO TEACH OR SUGGEST THE CLAIMED RATE INDICATION MESSAGE

As set forth in Applicants' previous responses, **the ARQ messages of Reed do not include a data rate message as claimed**, and Reed thus fails to teach or suggest sending or receiving a rate indication message including a data rate based on a channel condition measurement at the receiver as in the Applicants' claims. On this point, the Office Action never states that Reed teaches this feature, and states multiple times in the second and third sets of rejections that "Reed does not explicitly disclose message including" (Final Office Action of November 14, 2006 page 10, line 5; page 12, line 5l page 16, line 19; page 18, line 7). In this regard, **Applicants assume that the Office Action acknowledges that Reed does not teach this feature of the claims**.

SAYEED FAILS TO TEACH OR SUGGEST THE CLAIMED RATE INDICATION MESSAGE

Claims 1 and 11 were rejected in the second set of rejections as allegedly being obvious based on a proposed combination of Reed with Sayeed. However, **Sayeed,**

like Reed, does not teach or suggest a rate indication message including a data rate based on a channel condition measurement at the receiver.

Sayeed is directed to hybrid ARQ coding schemes where the state of the channel is implicitly determined by the transmitter based upon the frequency of acknowledgments (ACKs and NACKs) arriving from the receiver (col. 2, lines 55-60). In addition, Sayeed further teaches that the acknowledgment returned by the receiver may be modified to convey the number of errors in the corresponding received data packet (col. 2, line 66 to col. 3, line 2).

Sayeed Figs. 2B, C, E, and F are not sent by a receiver

The Office Action on pages 10 and 12 cites to Sayeed Figs. 2B, C, E, and F of Sayeed as teaching a "Hybrid FEC-ARQ message with 1/2 rate or 3/4 rate including a data rate based on channel condition measurement". Importantly, **the referenced data packets shown in the referenced Figs. 2B, C, E, and F of Sayeed are not sent by the receiver, but instead represent packets coded in the Forward Error Correction (FEC) module 18 of the data source**. Indeed, each of these packets includes an information payload portion and the Figs. 2B, C, E, and F themselves indicate "40 BYTES TO MODULATOR" at the right of each figure. Therefore, a person of ordinary skill in the art would not attempt the proposed modification/substitution of the packets in Figs. 2B, C, E, and F of Sayeed for the ARQ message of Reed, since the ARQ messages of Reed are sent by the receiver.

The Office Action in this regard appears to mistake the packets of Sayeed Figs. 2B, C, E, and F for ARQ messages. In this respect, Sayeed itself provides for the receivers to send ARQ messages, and in the second embodiment of Sayeed, the receiver sends ACK and NACK signals as well as the number of byte errors that occurred in the most recently received packet. However, **the acknowledgements by the receivers of Sayeed do not include data rates based on channel condition measurements at the receivers**.

The packet elements 26, 32, 43, and 49 in the packets of Sayeed are not data rates

In addition, Applicants note that **the elements 26, 32, 43, and 49 in the packets of Sayeed Figs. 2B, C, E, and F are not data rates, but instead are identified as code rates for the full or punctured convolution coded packets**. In this respect, convolutional codes are commonly specified by parameters n, k, and m, where n is the number of output bits, k is the number of input bits, and m is the number of memory

registers, and where the ratio k/n is the code rate, wherein k and n typically range from 1 to 8, m ranges from 2 to 10, and the code rate generally varies from 1/8 to 7/8. Thus, it appears that the indications "C RATE 1/2" in items 26 and 43 (Figs. 2B and 2E) of Sayeed are merely code rates for the full convolution code examples, and that the indications "P RATE 3/4" in the items 32 and 49 of Sayeed Figs. 2C and 2F are code rates for the punctured convolution code examples, and these are not data rates.

Therefore, as stated in Applicants prior response, the Reed reference fails to teach or suggest sending or receiving a rate indication message including a data rate based on a channel condition measurement at the receiver, and Sayeed likewise fails to teach this feature of the independent claims 1 and 11. **Because both Reed and Sayeed fail to teach or suggest a rate indication message including a data rate based on a channel condition measurement at the receiver, the proposed combination fails to teach or suggest all the elements of the claims, and no prima facie case of obviousness has been set forth in the Office Action**. Therefore, the second set of rejections is improper should be withdrawn for at least this reason.

PADOVANI FAILS TO TEACH OR SUGGEST THE CLAIMED RATE INDICATION MESSAGE

The Office Action rejected independent claims 1 and 11 as unpatentable over Reed in view of Padovani, alleging on page 16 that the DRC message of Padovani is a rate indicating message that includes a data rate based on channel condition measurement. Padovani indeed teaches a forward link data transmission embodiment in which a mobile selects a mobile 6 selects a requested data rate based on the best C/I measurement and transmits a DRC message on the DRC channel (col. 12, lines 15-26) and a base station transmits data to the mobile at the requested data rate. Padovani indicates other examples in which the mobile determines a desired data rate and indicates this to the base station (col. 14, lines 45-47; col. 20, lines 21-27, etc.). However, **the DRC message of the Padovani reference does not include a data rate as set forth in the claims 1 and 11, but rather includes a bit pattern or rate index indicating a requested one of a number of predetermined data rates**. (col. 2, lines 18-33). Therefore, the DRC message of Padovani does not teach or suggest sending or receiving a rate indication message including a data rate based on a channel condition measurement at the receiver as claimed, and the proposed combination of Reed with Padovani fails to teach or suggest all the elements of the claims. Applicants

therefore submit that the third set of rejections is also improper as failing to set forth a prima facie case of obviousness, and request that the rejections be withdrawn for at least this reason.

CONCLUSION

For at least the above reasons, the currently pending claims are believed to be in condition for allowance and notice thereof is requested.

Applicants also request that the Examiner contact the undersigned at the telephone number provided below to schedule an interview to discuss the current rejections.

Should any fees be due as a result of the filing of this response, the Commissioner is hereby authorized to charge the Deposit Account Number 06-0308, LUTZ200413.

Respectfully submitted,

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